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Abstract of the Disclosure

In some embodiments, the invention involves a die having a first conductor carrying a power supply voltage and a second conductor carrying a ground voltage. A semiconductor capacitor operating in depletion mode is coupled between the first and second conductors to provide decoupling capacitance between the first and second conductors, the semiconductor capacitor having a gate voltage. Various configurations may be used including: n+ gate poly and n+ source/drain regions in an n-body; p+ gate poly and n+ source/drain regions in an n-body; p+ gate poly and p+ source/drain regions in an n-body; p+ gate poly and p+ source/drain regions in a p-body; n+ gate poly and p+ source/drain regions in a p-body; n+ gate poly and n+ source/drain regions in a p-body. The power supply voltage may have a larger absolute value than does a flatband voltage.

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